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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/500,380	02/08/2000	Kenneth E. Knapp	K35R1645/3482P	2519

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EXAMINER	
RENNER, CRAIG A	
ART UNIT	**PAPER NUMBER**
2652	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.**	**Applicant(s)**	
	09/500,380	KNAPP ET AL.	
	Examiner	**Art Unit**	
	Craig A. Renner	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).. Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *and before 02 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,12,82-101,121-134 and 142-160* is/are pending in the application.

4a) Of the above claim(s) *128-134* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,12,82,84-92,94-101,121,123-127,142-145,147-154 and 156-160* is/are rejected.

7)☒ Claim(s) *83,93,122,146 and 155* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 128-134 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 06 May 2003.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 143 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In line 1 of claim 143, "said trailing magnetically soft layer" is indefinite because it lacks clear and/or positive antecedent basis.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 12, 82, 84-92, 94-101, 121, 123-127, 142-145, 147-154, and 156-160 are rejected under 35 U.S.C. 102(e) as being anticipated by Sasaki (US 6,583,954).

With respect to claims 1, 82, 84-90 and 142, Sasaki (US 6,583,954) teaches a transducer (FIGS. 7(A-B), for instance) comprising a plurality of solid layers (includes 9 and 16), including a magnetically soft loop (includes 9 and 16) substantially encircling an electrically conductive coil section (includes 12 and 14) and terminating in leading and trailing magnetically soft layers (9 and 16, respectively) separated by an amagnetic gap layer (10), the trailing magnetically soft layer being oriented substantially perpendicular to the amagnetic layer (as shown in FIG. 7B, for instance), wherein the trailing magnetically soft layer has a width measured in a direction substantially parallel to the amagnetic layer, the width being less than about two hundred nanometers and greater than about twenty angstroms (line 49 in column 16, and as shown in FIG. 24, for instance, in as broad as the terminology "about" may be construed, i.e., the width of the trailing magnetically soft layer is less than slightly greater than two hundred nanometers) [as per claims 1 and 142]; wherein a distance between the magnetically soft layers is not substantially greater than the width (i.e., the distance between the magnetically soft layers is not greater than the width, as shown in FIG. 7B, for instance) [as per claim 82]; wherein the trailing magnetically soft layer contains a refractory metal

(lines 13-17 in column 10, for instance) [as per claim 84]; wherein the trailing magnetically soft layer contains material having a B_s higher than that of Permalloy (lines 13-17 in column 10, for instance) [as per claim 85]; wherein the leading magnetically soft layer is substantially perpendicular to the trailing magnetically soft layer (as shown in FIG. 7B, for instance) [as per claim 86]; wherein the trailing magnetically soft layer contains material (as shown in FIG. 7B, for instance) [as per claim 87]; wherein the transducer further comprises a magnetoresistive sensor layer (5) disposed adjacent the leading magnetically soft layer and oriented substantially perpendicular to the trailing magnetically soft layer (as shown in FIG. 7B, for instance) [as per claim 88]; wherein the magnetically soft loop includes a magnetically soft trailing yoke layer (29) that adjoins the trailing magnetically soft layer (as shown in FIG. 12A, for instance) [as per claim 89]; and wherein the trailing yoke layer extends further in the direction substantially parallel to the amagnetic layer than in a direction substantially perpendicular to the amagnetic layer and aligned with the leading and trailing magnetically soft layers (as shown in FIGS. 12A and 26, for instance) [as per claim 90].

With respect to claims 12, 91-92 and 94-101, Sasaki (US 6,583,954) teaches a transducer (FIGS. 7(A-B), for instance) comprising a plurality of solid layers (includes 5, 9 and 16), including a magnetoresistive sensor layer (5) and a magnetically soft loop (includes 9 and 16) substantially encircling an electrically conductive coil section (includes 12 and 14) and terminating adjacent a media-facing surface in leading and trailing magnetically soft layers (9 and 16, respectively) separated by an amagnetic gap layer (10), the trailing magnetically soft layer being oriented substantially perpendicular

to the magnetoresistive sensor layer (as shown in FIG. 7B, for instance) and having a width measured in a direction substantially parallel to the magnetoresistive sensor layer, the width being less than about two hundred nanometers and greater than about twenty angstroms (line 49 in column 16, and as shown in FIG. 24, for instance, in as broad as the terminology "about" may be construed, i.e., the width of the trailing magnetically soft layer is less than slightly greater than two hundred nanometers) [as per claims 12, 94 and 98-99]; wherein the trailing magnetically soft layer is substantially perpendicular to the amagnetic layer (as shown in FIG. 7B, for instance) [as per claim 91]; wherein the trailing magnetically soft layer is substantially perpendicular to the leading magnetically soft layer (as shown in FIG. 7B, for instance) [as per claim 92]; wherein the width of the trailing magnetically soft layer is not substantially greater than a thickness of the amagnetic layer (i.e., the width of the trailing magnetically soft layer is relatively not significantly greater than a thickness of the amagnetic layer, as shown in FIG. 7B, for instance) [as per claim 95]; wherein the trailing magnetically soft layer contains material having a B_s higher than that of Permalloy (lines 13-17 in column 10, for instance) [as per claim 96]; wherein the trailing magnetically soft layer contains a refractory metal (lines 13-17 in column 10, for instance) [as per claim 97]; wherein the magnetically soft loop includes a magnetically soft trailing yoke layer (29) that adjoins the trailing magnetically soft layer (as shown in FIG. 12A, for instance) [as per claim 100]; and wherein the trailing yoke layer extends further in the direction substantially parallel to the magnetoresistive sensor layer than in a direction substantially perpendicular to the

magnetoresistive sensor layer and aligned with the leading and trailing magnetically soft layers (as shown in FIGS. 12A and 26, for instance) [as per claim 101].

With respect to claims 121, 123-127 and 143, Sasaki (US 6,583,954) teaches a transducer (FIGS. 7(A-B), for instance) comprising a magnetoresistive sensor layer (5), a magnetically soft loop (includes 9 and 16) disposed adjacent to the magnetoresistive sensor layer, traversed by an electrically conductive coil section (includes 12 and 14) and including magnetically soft leading and trailing pole-tips (9 and 16, respectively) disposed adjacent to a media-facing surface, the trailing pole-tip aligned with the magnetoresistive sensor layer along a longitudinal direction (as shown in FIG. 7B, for instance) and having a width measured in a track-width direction that is perpendicular to the longitudinal direction, the longitudinal and track-width directions being substantially parallel to the media-facing surface, the width being less than two hundred nanometers and greater than twenty angstroms (line 49 in column 16, and as shown in FIG. 24, for instance, in as broad as the terminology "about" may be construed, i.e., the width of the trailing magnetically soft layer is less than slightly greater than two hundred nanometers) [as per claims 121 and 143]; wherein the leading and trailing pole-tips are separated by a submicron nonferromagnetic gap layer (10, lines 17-19 in column 10, for instance) [as per claim 123]; wherein the trailing pole-tip consists essentially of material (as shown in FIG. 7B, for instance) [as per claim 124]; wherein the trailing pole-tip contains material having a B_s higher than that of Permalloy (lines 13-17 in column 10, for instance) [as per claim 125]; wherein the magnetically soft loop includes a magnetically soft yoke layer (29) adjoining the trailing pole-tip (as shown in FIG. 12A, for

instance) [as per claim 126]; and wherein the yoke layer extends further in the track-width direction than in the longitudinal direction (as shown in FIGS. 12A and 26, for instance) [as per claim 127].

With respect to claims 144-145 and 147-153, Sasaki (US 6,583,954) teaches a disk drive comprising a rigid magnetic disk (lines 13-15 in column 1, for instance), and a magnetic head (FIGS. 7(A-B), for instance) disposed adjacent to the disk, the head including a magnetically soft loop (includes 9 and 16) substantially encircling an electrically conductive coil section (includes 12 and 14) and terminating in leading and trailing magnetically soft layers (9 and 16, respectively) separated by an amagnetic gap layer (10), one (16) of the magnetically soft layers being oriented substantially perpendicular to the amagnetic layer (as shown in FIG. 7B, for instance), wherein the one magnetically soft layer has a width measured in a direction substantially parallel to the amagnetic layer, the width being less than about two hundred nanometers and greater than about twenty angstroms (line 49 in column 16, and as shown in FIG. 24, for instance, in as broad as the terminology "about" may be construed, i.e., the width of the trailing magnetically soft layer is less than slightly greater than two hundred nanometers) [as per claim 144]; wherein a distance between the magnetically soft layers is not substantially greater than the width (i.e., the distance between the magnetically soft layers is not greater than the width, as shown in FIG. 7B, for instance) [as per claims 145 and 153]; wherein the trailing magnetically soft layer contains a refractory metal (lines 13-17 in column 10, for instance) [as per claim 147]; wherein the trailing magnetically soft layer contains material having a B_s higher than that of

Permalloy (lines 13-17 in column 10, for instance) [as per claim 148]; wherein the leading magnetically soft layer is substantially perpendicular to the trailing magnetically soft layer (as shown in FIG. 7B, for instance) [as per claim 149]; wherein the trailing magnetically soft layer contains material (as shown in FIG. 7B, for instance) [as per claim 150]; wherein the transducer further comprises a magnetoresistive sensor layer (5) disposed adjacent the leading magnetically soft layer and oriented substantially perpendicular to the trailing magnetically soft layer (as shown in FIG. 7B, for instance) [as per claim 151]; wherein the magnetically soft loop includes a magnetically soft trailing yoke layer (29) that adjoins the trailing magnetically soft layer (as shown in FIG. 12A, for instance) [as per claim 152].

With respect to claims 154 and 156-160, Sasaki (US 6,583,954) teaches a disk drive comprising a rigid magnetic disk (lines 13-15 in column 1, for instance), and an electromagnetic transducer (FIGS. 7(A-B), for instance) including a magnetoresistive sensor layer (5), and a magnetically soft loop (includes 9 and 16) disposed adjacent to the magnetoresistive sensor layer, traversed by an electrically conductive coil section (includes 12 and 14) and including magnetically soft leading and trailing pole-tips (9 and 16, respectively) disposed adjacent to a media-facing surface, the trailing pole-tip aligned with the magnetoresistive sensor layer along a longitudinal direction (as shown in FIG. 7B, for instance) and having a width measured in a track-width direction that is perpendicular to the longitudinal direction, the longitudinal and track-width directions being substantially parallel to the media-facing surface, the width being less than two hundred nanometers and greater than twenty angstroms (line 49 in column 16, and as

shown in FIG. 24, for instance, in as broad as the terminology "about" may be construed, i.e., the width of the trailing magnetically soft layer is less than slightly greater than two hundred nanometers) [as per claim 154]; wherein the leading and trailing pole-tips are separated by a submicron nonferromagnetic gap layer (10, lines 17-19 in column 10, for instance) [as per claim 156]; wherein the trailing pole-tip consists essentially of material (as shown in FIG. 7B, for instance) [as per claim 157]; wherein the trailing pole-tip contains material having a B_s higher than that of Permalloy (lines 13-17 in column 10, for instance) [as per claim 158]; wherein the magnetically soft loop includes a magnetically soft yoke layer (29) adjoining the trailing pole-tip (as shown in FIG. 12A, for instance) [as per claim 159]; and wherein the yoke layer extends further in the track-width direction than in the longitudinal direction (as shown in FIGS. 12A and 26, for instance) [as per claim 160].

As the claims are directed to a transducer/disk drive, per se, the method limitations appearing in line 2 in each of claims 87, 98-99, 124, 142-143, 150, 153, and 157, and line 3 of claim 94 can only be accorded weight to the extent that they affect the structure of the completed transducer/disk drive. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "vacuum-deposited", "sputter-deposited", "sputtered", and "laminated", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process." *In re Thorpe, et al.*, 227 USPQ 964 (CAFC 1985). Furthermore, note that a "[p]roduct-by-process claim, although reciting subject

matter of claim in terms of how it is made [i.e., "vacuum-deposited", "sputter-deposited", "sputtered", and "laminated", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations." *In re Hirao and Sato*, 190 USPQ 685 (CCPA 1976).

Pertinent Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Crue, Jr., et al. (US 6,829,819), which teaches a transducer with a magnetically soft pole-tip layer less than about two hundred angstroms (lines 49-52 in column 6 and lines 5-6 in column 9, for instance); Shi et al. (US 6,190,764), which teaches a transducer with a magnetically soft pole-tip layer less than about two hundred angstroms (lines 63-64 in column 8, for instance); and Amin et al. (US 6,521,335), which teaches a transducer with a magnetically soft pole-tip layer less than about two hundred angstroms (lines 1-2 in column 4, for instance).

Allowable Subject Matter

7. Claims 83, 93, 122, 146 and 155 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments filed 16 April 2004 have been fully considered but they are not persuasive.

With respect to the rejection utilizing Sasaki (US 6,583,954), the applicant argues that "a Declaration of Kenneth E. Knapp under 37 C.F.R. § 1.131, dated April 12, 2004,... obviates this rejection." This argument, however, is not found to be persuasive for the following: Firstly, the declaration only references "independent claim 1", but remains silent as to all of the other independent claims as well as their corresponding dependent claims. Secondly, the declaration does not specifically state that the drawings show that the inventor conceived the invention as defined by all of the claims as now presented in the accompanying amendment as early as May 24, 1999. The statement in section 2 of the declaration appears to only reference independent claim 1 as originally presented. Applicant is reminded that false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001, Title 18, of the United States Code, and that such willful false statements may jeopardize the validity of the application or patent issued thereon. Lastly, the evidence submitted again only details "SUB-0.5 um NARROW TRACK" and not the specific ranges set forth in the claims as now amended. Furthermore, applicant's discussion in the remarks does not demonstrate conception as exchange coupling layer thickness and tunnel barrier layer thickness are not the same as track width. Similarly, the use of Sasaki (US 6,317,289) to demonstrate conception is also unfounded as Sasaki (US 6,317,289) was published after the date of the evidence drawings. Therefore, the evidence submitted is still

insufficient to establish a conception of the invention prior to the effective date of the Sasaki (US 6,583,954) reference. While conception is the mental part of the inventive act, it must be capable of proof, such as by demonstrative evidence or by a complete disclosure to another. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended. See *Mergenthaler v. Scudder*, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Craig A. Renner
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CAR